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**TOTAL FEE \$345 \$ --**

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X The Commissioner is hereby authorized to charge any additional fees which may be required in connection with the following or credit any overpayment to Account No. 50-0538 :

X Filing fees under 37 C.F.R. §1.16.

X Patent application processing fees under 37 C.F.R. §1.17.

\_\_\_ The issue fee set in 37 C.F.R. §1.18 at or before mailing of the Notice of Allowance, pursuant to 37 C.F.R. §1.311(b).

X Three copies of this sheet are enclosed.

\_\_\_ A certified copy of previously filed foreign application No. \_\_\_\_\_ filed in \_\_\_\_\_ on \_\_\_\_\_. Applicant(s) hereby claim priority based upon this aforementioned foreign application under 35 U.S.C. §119.

X Other (identify) An Express Mail Certificate dated July 12, 2000, with Express Mail Label No. EJ539521607US

Respectfully submitted,



Albert Wai-Kit Chan  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : STONE, et al.

U.S. Serial No.: Not Yet Known

Filed : Herewith

For : INTERACTIVE MULTIPLE-VIDEO WEBCAM CHATROOM

59-42 Parsons Blvd.  
Flushing, NY 11365-1433

July 12, 2000

Assistant Commissioner for Patents  
Washington, D.C. 20231


Sir:

**EXPRESS MAIL CERTIFICATE OF MAILING**  
**IN CONNECTION WITH THE ABOVE-IDENTIFIED APPLICATION**

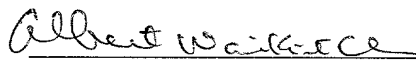
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Date of Deposit: July 12, 2000

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. \$1.10 on the date indicated above and is addressed to Assistant Commissioner for Patents, Washington, D.C. 20231.

  
\_\_\_\_\_  
Printed Name: Sharon Lee

Respectfully submitted,

  
\_\_\_\_\_  
Albert Wai-Kit Chan  
Attorney for Applicant  
59-42 Parsons Blvd.  
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**STATEMENT CLAIMING SMALL ENTITY STATUS**  
**(37 CFR 1.9(f) & 1.27(c))--SMALL BUSINESS CONCERN**

Docket Number (Optional)  
 622

Guy STONE, Daniel SMITH, Alexey SUITH,  
 Sally STONE, and Laura STONE

Applicant, Patentee, or Identifier:

Application or Patent No.: Not Yet Known

Filed/Issued: Filed herewith (July 12, 2000)

Title: INTERACTIVE MULTIPLE-VIDEO WEBCAM CHATROOM

I hereby state that I am

- ☐ the owner of the small business concern identified below.  
☒ an official of the small business concern empowered to act on behalf of the concern identified below.

NAME OF SMALL BUSINESS CONCERN: Vue Cam Inc.

ADDRESS OF SMALL BUSINESS CONCERN: 7946 Ivanhoe Avenue, Suite 110  
 La Jolla, California 92037

I hereby state that the above identified small business concern qualifies as a small business concern as defined in 13 CFR Part 121 for purposes of paying reduced fees to the United States Patent and Trademark Office. Questions related to size standards for a small business concern may be directed to: Small Business Administration, Size Standards Staff, 409 Third Street, SW, Washington, DC 20415.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

- ☒ the specification filed herewith with title as listed above.  
☐ the application identified above.  
☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern, or organization having rights in the invention must file separate statements as to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization having any rights in the invention is listed below.

- ☒ no such person, concern, or organization exists.  
☐ each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF PERSON SIGNING: Guy Stone

TITLE OF PERSON IF OTHER THAN OWNER: President

ADDRESS OF PERSON SIGNING: Vue Cam Inc., 7946 Ivanhoe Avenue, Suite 110  
 La Jolla, California 92037

SIGNATURE: 

DATE: 7/12/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : STONE, et al.

U.S. Serial No.: Not Yet Known

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Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

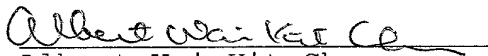
PRELIMINARY AMENDMENT

Please cancel claims 21-30 without prejudice.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicants' undersigned attorney invites the Examiner to telephone at the number provided below.

No fee is deemed necessary in connection with the filing of this Amendment. However, if any additional fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 50-0538.

Respectfully submitted,

  
Albert Wai-Kit Chan  
Reg. No. 36,479  
Attorney for Applicants  
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(718) 460-6664

0044903244960

**To all whom it may concern:**

have invented certain new and useful improvements in

of which the following is a full, clear and exact description.

INTERACTIVE MULTIPLE-VIDEO WEBCAM CHATROOM**FIELD OF THE INVENTION**

5

The present invention relates generally to the process of using webcams in an Internet chatroom setting.

10 **BACKGROUND OF THE INVENTION**

Chatrooms are virtual lounges where a number of Internet users can meet to speak, or chat, about any subject of interest to them. The first Internet chatrooms appeared in April 1995(1) and the concept has quickly become a staple in the Internet world. Chatrooms attract a variety of users from throughout the world for the purposes of live ``talk,`` which is typically represented in text form as users type in and send their comments(2). Some Internet chatrooms also feature a single live photo image that users (also known as ``chatters``) can view once they enter the chatroom. These images are transmitted via a webcam (or ``webcam``) attached to the computer of the chatter who wants his/her image transmitted. Chatters can view the live image of one other chatter using webcam technology(3). A chatter who wishes to offer his/her image via webcam can set his/her camera to take a snapshot of him/her at his/her computers at preset intervals (i.e. every 30 seconds, 1 minute, etc.). In this way, the other chatters can see this person's image change at the same rate. The webcam can be positioned to take pictures of anything within the webcam's range (i.e. the chatter's companions in the same room, other sections of the room).

In 1984, a company called White Pine developed CU-SeeMe, a video chat software. The company has since changed its name to CU-SeeMe Networks, and it hosts an Internet site (<http://www.cuseemeworld.com/>) which allows chatters to view live video and hear audio of other chatters(4). The site consists of several chatrooms organized by chatters' areas of interest (i.e. a relationship chat area, a women's chat area, a travel chat area, etc.). Each of these areas contains at least one chatroom. For instance, the travel chat area contains chatrooms for San Francisco, New York, Paris, etc. When a user enters a chatroom, he/she sees three squares at the top of the page. These squares are designed to display live video photos of the chatters. There are two rectangular regions below the video area. The one to the left is for chat text, and the one to the right contains a list of chatters. As is the case with many other Internet chatrooms, there is a blank space at the bottom of the page where chatters can type in their messages, and several buttons: ``Send Chat'' (to send chatter's typed message into the chat area), ``Show Video'' (to show video of a particular chatter), ``Show Profile'' (to display a profile of a certain chatter), and ``Hang Up'' (to leave the chatroom). The company's background is in videoconferencing, and their software reflects this. For instance, 1) the CU-SeeMe software program works only on the Microsoft Windows Platform; 2) the program only allows a maximum of 25 people in a single chatroom and displays a maximum of three webcam photos at the top of the page; and 3) CU-SeeMe World uses its own proprietary transfer protocol to transfer files to each user.

The invention disclosed in this application also provides for multiple webcam images in a chatroom environment, but there are several major differences



in this invention and CU-SeeMe's technology: 1)  
This invention uses Java Programming Language, and  
the same program works across all platforms. That  
means it works in all computers that are capable of  
5 running a Java Virtual Machine. Today, most  
computers are equipped with a Java Virtual Machine,  
as are most web browsers (including Microsoft's  
Internet Explorer and Netscape's Navigator). This  
allows people to use the software without any  
10 additional plug-ins. 2) This invention has no  
limit on the number of users that are allowed to  
participate in the chatroom, and the computer-user's  
screen size is the only limit on the number of live  
webcam photos that can be displayed on the page.  
15 Those with small screens can view four live photos,  
for instance, and those with larger screens can view  
six or more live photos. In other words, the  
invention customizes itself to fit each user's  
computer system. 3) This invention uses well-defined  
20 Internet standards to transfer and display files.  
In addition to these differences, the process used  
to reach this invention was very different from the  
one used to reach the CU-SeeMe software program.  
The current CU-SeeMe site uses a program called CU-  
25 SeeMe Pro which allows for videoconferencing over  
standard telephone lines. That program was modified  
so that it would be useful over the World Wide Web  
and then chat functionality was added to it. The  
invention disclosed here took a standard web-based  
30 chatroom and added video capabilities to it.

## SUMMARY OF THE INVENTION

5 This invention provides a software program that allows users to chat with each other while displaying live webcam images of more than one selected user within an Internet chatroom environment. The webcam images are displayed at the top of the chatroom page, and chat text runs below the images. Different webcams may transmit their images in different size, but this invention automatically makes all the images appear in uniform size. The invention also automatically assigns each image a position on the chatroom screen. If the number of chatters falls below the number of available image positions (or some chatters do not have a webcam or do not want their images projected) the program automatically displays a preselected logo (i.e. the logo of the company running the chatroom). Another outstanding feature of this program is that chatters can select the webcam images they want to view while they are chatting. Each webcam has a URL (Uniform Resource Locator) which the webcam owner programs into the webcam after purchasing it. This program asks each chatter for his/her URL and then organizes all the URLs of incoming chatters so that their webcam images are readily available to other chatters. The program provides a running list of the screen names of all participants in the chatroom. When a chatter enters, his/her screen name appears on the list. When the chatter exits, his/her screen name disappears, too. If, for instance, Chatter 1 prefers to view a webcam image of Chatter 13 or Chatter 4, he/she can do so immediately by double-clicking his/her mouse on Chatter 13's screen name. Chatter 13's image will suddenly appear at the top of the screen alongside

the images of the other chatters that Chatter 1 has chosen to view. The invention identifies each image by screen name. Chatters who do not have a webcam are identified by a common symbolic logo (i.e. the logo of the company or organization running the chatroom) in place of their image. The program updates the symbolic logo at a predefined interval.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a simple diagram how the client program works from a user's perspective.

5

This figure shows a general path that a user would take when using the client program over the Internet.

10 FIGURE 2 is a flow chart for the Chat portion of the client.

15 This diagram shows the order that the client sends requests to the server to update each individual piece of the software.

FIGURE 3 is a diagram showing the general architecture of the server portion of our project.

20 This shows the general flow the server portion of the program. The server portion relies heavily on multi-threading.

25 FIGURE 4 is a diagram showing a more detailed implementation of the thread that handles each client.

30 This shows the threads most basic states: sending & receiving. The thread receives a command from the client and then sends back a response.

35 FIGURE 5 is a drawing of a possible interface that appears on each chatter's screen. (The client program)

This figure shows how the client program looks, how the elements on the interface work with one another to display the webcam images & text on each user's screen. The interactions that the

5 chatter can take are also documented in this figure.

**DETAILED DESCRIPTION OF THE INVENTION:**

Terminology Definitions:

5 Chatroom - An Internet-based technology that allows multiple users to virtually meet in one place and type messages to one another that will be visible to all within the room.

10 Web Camera - Any device attached to a computer that transmits images over the Internet, most commonly the World Wide Web.

WebCam - A generic term for any type of web camera.

15 Java Virtual Machine (or JVM) - A program that interprets compiled Java Code, which allows it to run on any computer platform.

20 Applet - A Java program that runs inside of a Java-enabled Web Browser.

SGML - A standardized markup language for defining the logical structure of a computer document.

25 HTML - A subset of SGML that is used to format documents over the Internet.

30 Multi-threading - The ability to run several threads at the same time. Each thread acts like a mini program that shares data with the main program.

Protocol - A standard way to send a message across some communication median.

35

Graphical User Interface (or GUI) - A Window-based system, where the user of the system uses a mouse to point and click.

5 Discussion Room - A separate room inside the main chatroom that tends to be focused on a separate discussion. A chatter can only be a member of one discussion room at a time, and all of the messages sent into other discussion rooms are not posted.

10

File Transfer Protocol (or FTP)(5)- A protocol that defines a way to copy files over the Internet.

15

Transmission Control Protocol (or TCP)(6) - An open standard that defines how to connect and transfer data over the Internet.

20

Username - Each user in the system is displayed by a name that they choose. All usernames have to be unique.

25

Client - A program that acts as the front end to each individual user and runs on each user's machine. It receives all the chatroom information from the server via the Internet.

Server - The part of the program that runs on a centralized machine and keeps the client programs synchronized.

Internet - The loose association of millions of computers that allows all users to communicate with one another.

5

All Words ending ".java" - The name of the source code file that a description deals with.

10 This invention provides a system comprising a method which allows users to chat with each other while displaying live webcam images of more than one selected user within a chatroom environment. It also provides a method in which the webcam images are displayed at the top of the page. The invention  
15 also provides a method in which the displayed webcam images have a uniform size. It also provides a method in which the webcam images are automatically assigned a position on the chatroom screen. The invention also provides a method in which chatroom  
20 users can select the webcam images they want to view while they are chatting. It also provides a method in which each user is given a list of other online users from which they can select webcam images to view. It also provides a method in which a list of  
25 URLs from each user's personal webcam is requested and organized. The invention also provides a method in which each image is associated with an individual user. It also provides a method in which users who do not have a webcam will have a symbolic logo  
30 appear in place of their image. It also provides a method in which the symbolic logo is updated at a predefined time interval. The invention provides a system which allows users to chat with each other while displaying live webcam images of more than one  
35 selected user within a chatroom environment. The invention also provides a system in which the webcam

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images are displayed at the top of the page. It also provides a system in which the displayed webcam images have a uniform size. It also provides a system in which the webcam images are automatically assigned a position on the chatroom screen. The invention provides a system in which chatroom users can select the webcam images they want to view while they are chatting. It also provides a system in which each user is given a list of other online users from which they can select webcam images to view. The invention provides a system in which a list of URLs from each user's personal webcam is requested and organized. It also provides a system in which each image is associated with an individual user. It also provides a system in which users who do not have a webcam will have a symbolic logo appear in place of their image.

The invention also provides a system in which the symbolic logo is updated at a predefined time interval. It further provides a method in which the setting is an Internet chatroom; in which Java Programming Language is used; in which there is no limit on the number of users that are allowed to participate in the chatroom; in which well-defined Internet standards are used to transfer and display files; in which video capabilities are added to a standard web-based chatroom; and in which the setting is an Internet chatroom.

This invention further provides a basic text-based chatroom software that is written with the Java Programming Language and is distributed over the Internet. The webcam chatroom allows a user to view a live webcam image of the person with whom he/she is chatting. One unique characteristic of this

invention is that it displays webcam images of more than one user's picture at the top of the window, while displaying beneath the images the text that each user types in. When a chatter first visits the chatroom, the program asks the chatter if he/she would like to enter the URL of his/her webcam. If the chatter is interested, he/she enters the URL, and the program automatically associates the URL with that chatter's screen name. When one chatter double-clicks on another's screen name, the program invokes an algorithm that automatically removes one of the multiple webcam images from the top of the chat screen and replaces it with a live image from the chosen chatter's webcam. Different webcam manufacturers have different resolutions, and the invention addresses these differences by using the core functionality in the programming language to resize every image so that they all appear in the same size in the chatroom.

This program contains two distinct parts: The client and the Server. Each part functions separately, but they communicate with each other using the TCP/IP protocol. This functionality is provided in the Java Programming Language by Sun Microsystems.

The client program is responsible for receiving the images and text to be displayed from the server. In addition to displaying the data it receives from the server, the client also allows the user to participate in the discussion by typing in text, and also allows the user to select whom they wish to see on top of the screen by double clicking on their username on the right hand side. The client displays the list of available discussion rooms and

allows the user to create a new one. The client is  
also responsible to retrieve list of users logged in  
to each discussion room and to retrieve messages  
from the current discussion room the user resides  
5 in.

The server program is responsible for getting the  
user information from the client. That information  
tells the server where it needs to download the  
10 webcam image from (the URL of the image), what the  
user has typed into the text box, and which chatters  
the user wishes to have displayed. The server then  
goes and downloads the images off the Internet  
(using FTP) and then sends the images to the client.  
15 The server also receives whatever text the client  
sends it and then resends it to all of the clients  
connected to the server. The server also keeps the  
clients updated with information pertaining to which  
users are connected and what discussion rooms are  
20 available.

#### **Developer Notes:**

1. How webcam images are displayed at the top of  
25 the chatroom page

The program periodically refreshes the webcam images  
by retrieving the chatter list from the Server,  
which contains chatters and their webcam URLs. The  
30 program then prepares the image by connecting to the  
Server via TCP. It reads the byte-array for each  
image. The image is initialized for the screen and  
placed at the top of the chatroom area. The  
corresponding source code is available in  
35 VCC\_Chatter.java

2. How the webcams are automatically sized to have a uniform size

The program resizes the images from chatters' webcams by calculating scaled height and calculating scaled width. It then uses Java's built-in image-scaling method (getScaledInstance()) The corresponding source code is available in PointableImageInfo.java

10

3. How the webcams are assigned a position on the screen

The program displays any number of webcam images on top of the screen. The displayed images consist of a one or more webcam images selected from all available webcam images. The program calculates screen "real-estate" (size of the window) based on the number of webcam images displayed and the size of each webcam image. The corresponding source code can be found in VCC\_Chatter.java

20

4. How the system of selecting users works.

To select the webcam of a specific chatter, another chatter double-clicks on a username from the list of available users. That person's image is placed on top of the screen, and a non-selected person's image is removed. The corresponding source code is available in VCC\_Panel.java

30

CONFIDENTIAL

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**What is claimed is:**

1. A method which allows users to chat with each other while displaying live webcam images of more than one selected user within a chatroom environment.
2. The method of claim 1 in which the webcam images are displayed at the top of the page.
3. The method of claim 1 in which the displayed webcam images have a uniform size.
4. The method of claim 1 in which the webcam images are automatically assigned a position on the chatroom screen.
5. The method of claim 1 in which chatroom users can select the webcam images they want to view while they are chatting.
6. The method of claim 5 in which each user is given a list of other online users from which they can select webcam images to view.
7. The method of claim 1 in which a list of URLs from each user's personal webcam is requested and organized.
8. The method of claim 7 in which each image is associated with an individual user.
9. The method of claim 7 in which users who do not have a webcam will have a symbolic logo appear in place of their image.

10. The method of claim 9 in which the symbolic logo  
is updated at a predefined time interval.
- 5 11. A system which allows users to chat with each  
other while displaying live webcam images of  
more than one selected user within a chatroom  
environment.
- 10 12. The system of claim 2 in which the webcam images  
are displayed at the top of the page.
13. The system of claim 3 in which the displayed  
webcam images have a uniform size.
- 15 14. The system of claim 4 in which the webcam images  
are automatically assigned a position on the  
chatroom screen.
- 20 15. The system of claim 5 in which chatroom users  
can select the webcam images they want to view  
while they are chatting.
- 25 16. The system of claim 6 in which each user is  
given a list of other online users from which  
they can select webcam images to view.
- 30 17. The system of claim 7 in which a list of URLs  
from each user's personal webcam is requested  
and organized.
18. The system of claim 8 in which each image is  
associated with an individual user.
- 35 19. The system of claim 9 in which users who do not  
have a webcam will have a symbolic logo appear  
in place of their image.

20. The system of claim 10 in which the symbolic  
logo  
is updated at a predefined time interval.
- 5
21. The method of claim 1 in which the setting is an  
Internet chatroom.
22. The method of claim 1 in which Java Programming  
10 Language is used.
23. The method of claim 1 in which there is no limit  
on the number of users that are allowed to  
participate in the chatroom.
- 15
24. The method of claim 1 in which well-defined  
Internet standards are used to transfer and  
display files.
- 20
25. The method of claim 1 in which video  
capabilities are added to a standard web-based  
chatroom.
26. The system of claim 21 in which the setting is  
25 an Internet chatroom.
27. The method of claim 22 in which Java Programming  
Language is used.
- 30
28. The method of claim 23 in which there is no  
limit on the number of users that are allowed  
to participate in the chatroom.
29. The method of claim 24 in which well-defined  
35 Internet standards are used to transfer and  
display files.



30. The method of claim 25 in which video capabilities are added to a standard web-based chatroom.

**INTERACTIVE MULTIPLE-VIDEO WEBCAM CHATROOM**

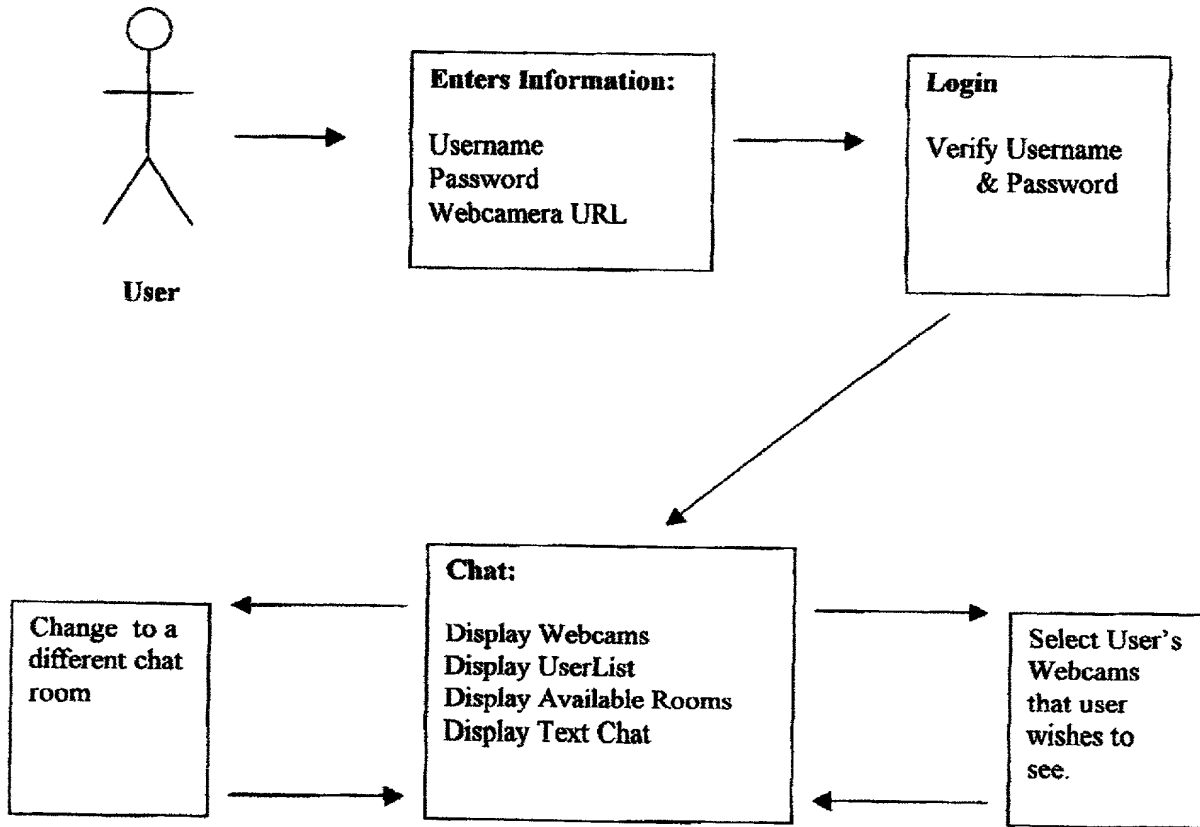
**ABSTRACT OF THE INVENTION**

5

This invention allows computer users to chat with each other online while displaying live webcam images of multiple selected users within an Internet chatroom environment. This technology is unique to the field for a number of reasons: 1) It uses Java Programming Language, and the same program works across all platforms; 2) There is no limit on the number of users that are allowed to participate in the chatroom; 3) It uses well-defined Internet standards to transfer and display files; 4) No other software program allows unlimited multiple webcam images to appear in a chatroom setting; 5) The webcam images are automatically uniformly sized; 6) Users can select the webcam images they want to view from a list of chatters by double-clicking a mouse. Chatters register the URL (Uniform Resource Locator) of their webcam before they enter the chatroom, and their images are automatically made available to other chatters for viewing. WebCam images are displayed at the top of the page. Although different webcams have different resolutions, this invention uses the core functionality in the programming language to resize the images so they are all the same size.

30

Figure 1.



## General Flow for Client Program

Figure 2.

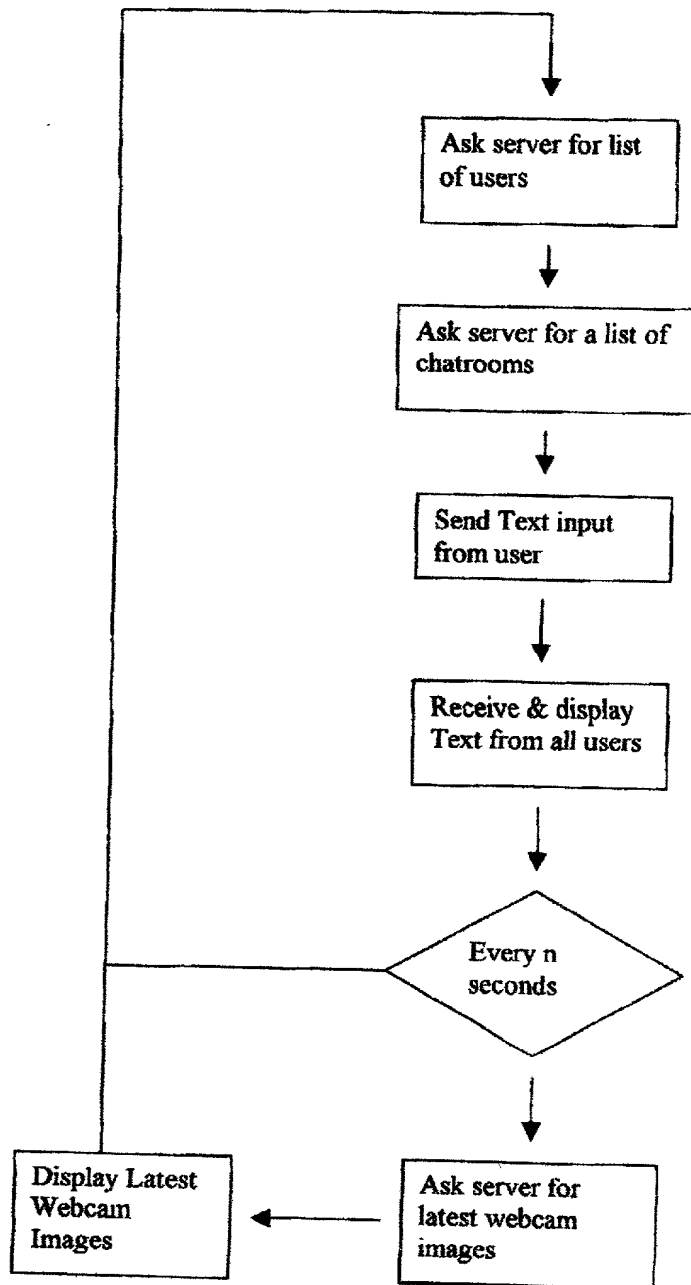
**Flow Chart of Client Chat**

Figure 3.

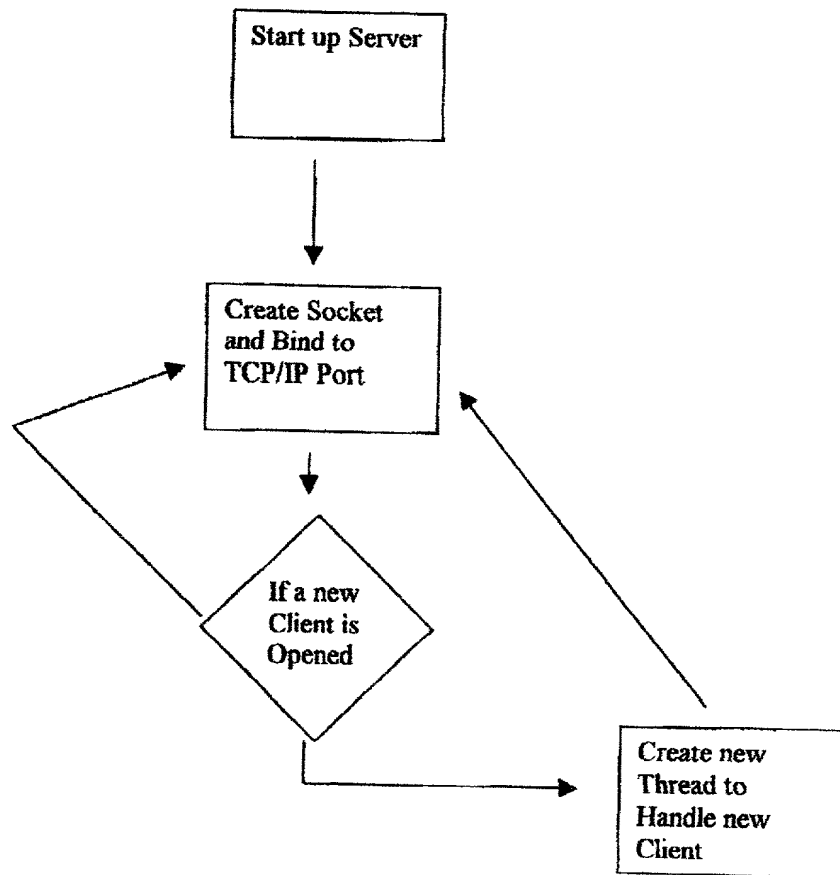
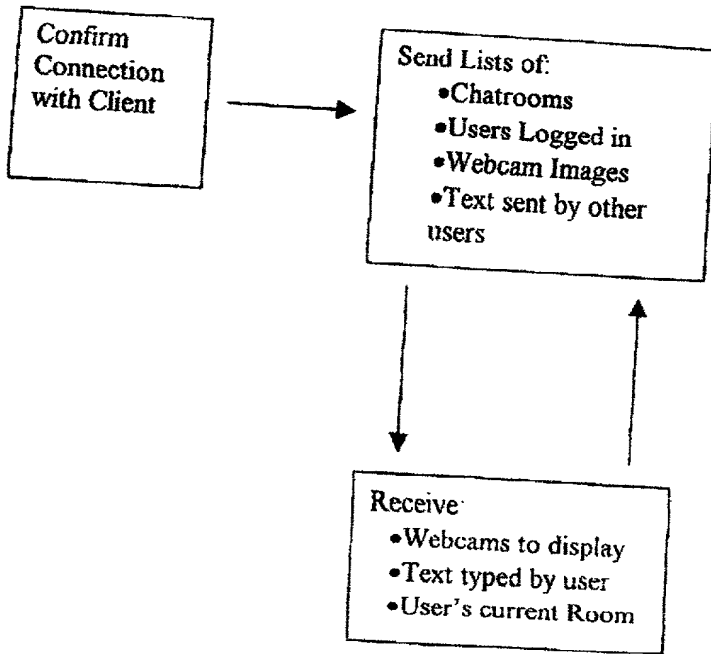
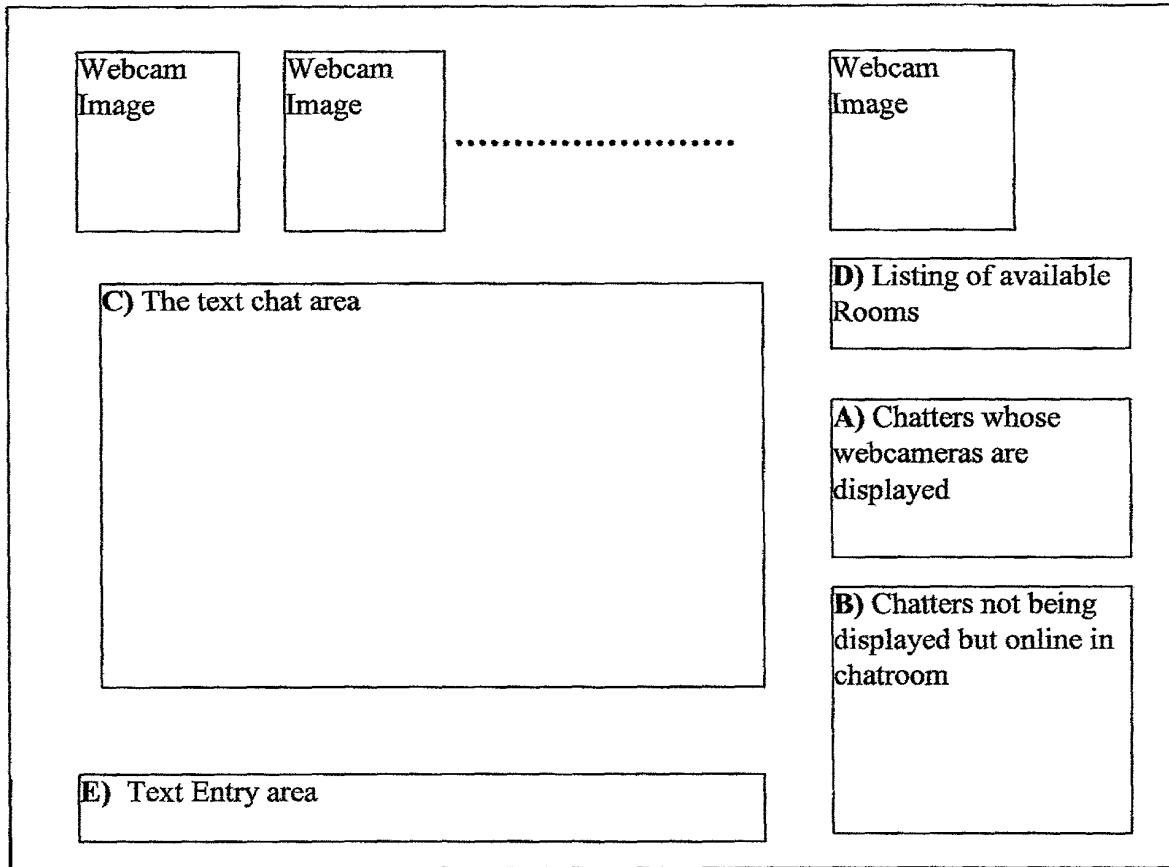
**General Server Flow**

Figure 4.



**Server: Create New Thread**

Figure 5.



This is a sample on how the program looks to the client. There are any number of webcam images on the top of the screen. These images are requested from the server program based on the names listed in Box A (see above). The names that are in Box B are still able to participate in the chat session, but their webcams are not shown on the top of the screen of this particular chatters screen. Each chatter will be presented a screen similar to this and they will be given the options of which chatters to view by double clicking names in Box A & B.

#### Description of each Letter

- A) Chatters whose webcams appear on the top of the screen
- B) Chatters whose webcams do not appear on the top of the screen
- C) The text chat area where users' messages are displayed
- D) The listing of user-created chatrooms that are available to chat in
- E) In this area, the chatter types what he/she wishes to say and then hits "Enter" (or "Return") and it appears in the message area (Box C)